(B) Amendment to the Claims

1. (currently amended) A **computer implemented** method of processing a group of spatially related seismic data traces ~~utilizing a digital computer~~, comprising:

   defining seismic data windows extending over selected portions of said group of spatially related seismic data traces;

   generating a frequency spectrum of the seismic data within **each** successively selected ~~windows~~ of said seismic data traces by applying a transform to said successively selected windows having poles on ~~the~~ **a** unit z-circle, where z is the z-transform;

   determining the frequency having the greatest amplitude within the frequency spectrum of the seismic data within **each** said successively selected ~~windows~~;

   calculating kurtosis of each said frequency spectrum;

   determining if the kurtosis of each said frequency spectrum exceeds a selected value of kurtosis;

   utilizing said determined frequencies having the greatest amplitude **within each frequency spectrum having a kurtosis value which exceeds said selected value of kurtosis** to generate a seismic display in which horizontal dimension represents distance and vertical dimension represents time**, wherein the seismic display represents calculated bed thickness,** and

   utilizing said seismic display to determine the presence of thin beds.

2. (cancelled)

3. (currently amended) The method of claim ~~2~~**1** wherein said spatially related seismic data traces comprise a three-dimensional volume of seismic data.

4. (cancelled)

5. (cancelled)

6. (cancelled)

7. (cancelled)

8. (cancelled)

2   APA-001

9. (cancelled)

10. (cancelled)

11. (cancelled)

12. (currently amended) The method of claim ~~11~~ 1 further comprising generating a substantially vertical cross-section of said seismic data to represent either the presence or absence of thin beds in said vertical cross-section..

13. (previously amended) The method of claim 1 wherein said transform is a maximum entropy transform.

14. (original) The method of claim 13 wherein said transform has from one to four poles on the unit z-circle.

15. (cancelled)

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)

21. (currently amended) A **computer implemented** method of processing a group of spatially related seismic data traces ~~with a digital computer~~, comprising:

defining seismic data windows extending over selected portions of said group of spatially related seismic data traces;

generating a frequency spectrum of the seismic data within **each** successively selected windows of said seismic data traces by applying a maximum entropy transform to said successively selected windows;

determining ~~the~~ a frequency component having the greatest amplitude within

3 APA-001

each said frequency spectrum;

calculating kurtosis of each said frequency spectrum;

determining if the kurtosis of each said frequency spectrum exceeds a selected value of kurtosis; and

utilizing said frequency components having the greatest amplitude within said frequency spectra having a kurtosis value which exceeds said selected value of kurtosis to calculate bed thickness; and

utilizing the calculated bed thickness to generate a seismic display in which the horizontal dimension represents distance and the vertical dimension represents time, said seismic display representing either the presence or absence of thin beds.

22. (previously amended) The method of claim 21 wherein said seismic display comprises a substantially vertical cross-section of a three-dimensional volume of seismic data.

23. (cancelled) .

24. (cancelled)

25. (cancelled)

4   APA-001